1023-92-1523 **Baris Hancioglu*** (bah10@pitt.edu), 830 Shwerwood Rd., Pittsburgh, PA 15221, and **David Swigon** and **Gilles Clermont**. *A Dynamical Model of Influenza A Virus Infection and Its Clinical and Epidemiological Relevance.*

We present a simplified, biologically justified, mathematical model of the dynamics of IAV infection and the human immune response to such an infection. Three arms of immune response are represented in our model: innate, cellular, and humoral. Our main objectives are constructing a simplified model of the dynamics of influenza infection and immune response as a set of ordinary differential equations, exploring the effect of initial viral load on the severity and duration of the disease, performing sensitivity analysis and characterizing the parameters that influence the onset, duration and severity of infection and investigating how the course of the disease depends on the evolution of antigenic distance. Our main goal is to uncover the relative roles played by each arm of the immune response during the course of the disease to have a better understanding of what drives the intensity of symptoms, infectivity of the virus and the host and duration of the disease. We present the clinical implications of our model such as reactions to treatment by antiviral drugs and anti-inflammatories. When we consider a nave host with no adaptive immunity, its failure to develop compatible antibodies results in recurrence of the disease and transition to a chronic state (Received September 26, 2006)